user manual

Compact 60$_3$

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AER The Acoustic People®

Compact 60$_3$

user manual

1. Introduction

Welcome to *AER*!

Thank you for choosing the **Compact 60³**.

The **Compact 60³** is a professional, compact and powerful amplifier system. Especially developed for the enhancement of acoustic instruments it is as well suitable for other (also electrical) instruments.

Our conceptional design was focussed on the singer-/songwriter who requires outstanding reproduction of instrument and vocals as well as a handy unit with gigbag for easy travelling even with public means of transport, astonishing audiences as well as sound-engineers through excellent sound and professional instrumentation.

All AER-systems are subtly dynamically controlled, which ensures absolute reliability in full load operation despite strikingly small sizes and little weight.

Read on and have fun using your **Compact 60³**!

2. Safety instructions

The following guidelines shall help minimize the risk of injury through fire or electric shock.

1. Carefully read these safety notes before you use the device!

2. Keep these safety notes in a safe place.

3. Pay attention to all warnings, instructions and additional texts on the unit.

4. Do not install or use your device in close proximity to water or if you are wet yourself.

5. Use your device in a safe place where nobody can step on cables or trip over and damage them.

6. Always pull the mains plug before cleaning your device. Use only a dry cloth for cleaning. Avoid the use of detergents and do not let any liquids seep into the unit.

7. Never install your device close to units with strong electromagnetic fields such as large mains transformers, revolving machines, neon illumination etc. Do not lay signal cables parallel to power current cables.

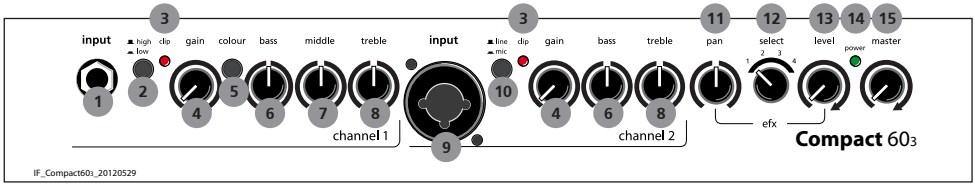
8. There are no user-serviceable components inside the unit. To avoid the risk of an electric shock, the unit must not be opened. All maintenance, adjustment and repair works should be carried out by qualified staff only. Any unauthorized tampering will void the 2-year warranty.

9. In keeping with the EMV regulations screened cables with correctly fitted connectors must be used for all signal connections.

10. Always use an earthed power supply with the correct mains voltage. If you are in doubt about the power outlets ground, have it checked by a qualified technician.

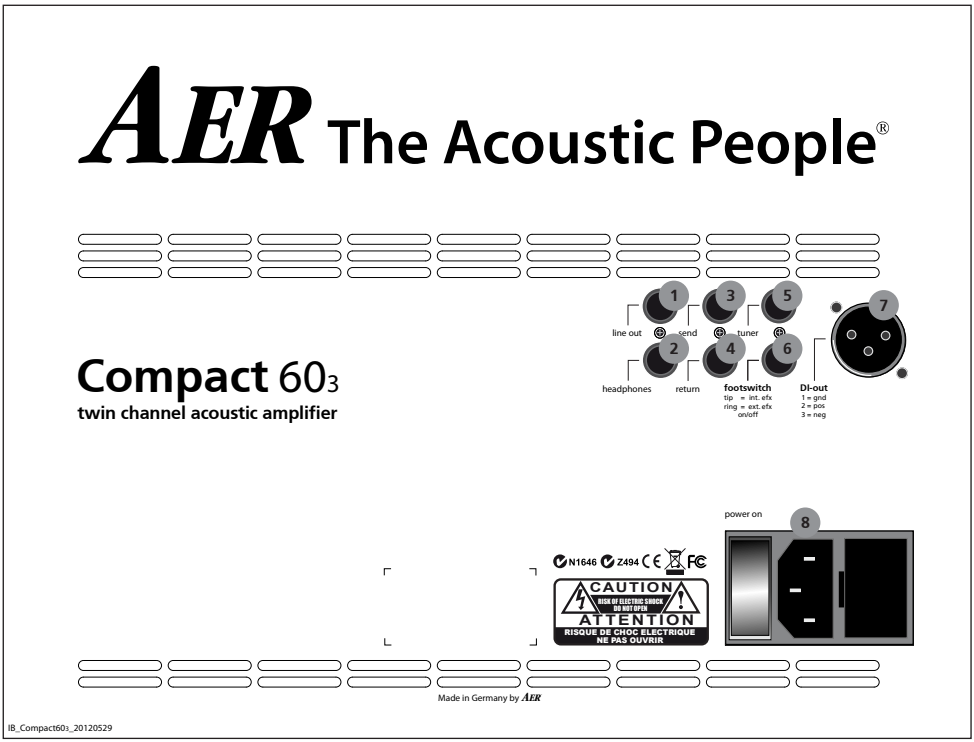
11. Cable up your device only when it is powered off.

3. Controls and connections



3.1 Front side

1) input (ch. 1)	signal input, socket for 6,3 mm mono jackplug	
2) high/low	input sensitivity switch, attenuator ▂ = off ▁ = on	
3) clip	overload indicator	
4) gain	input level control	
5) colour	tone colour filter activation switch ▂ = not active ▁ = active	
6) bass	bass frequency level control	
7) middle	middle frequency level control	**channels 1 + 2**
8) treble	treble frequency level control	
9) input (ch. 2)	signal input, combo-socket for 6,3 mm mono jackplug and XLR-connectors	
10) line/mic	signal source selector switch: **line** (only via jackplug) for instruments (pickup) and other line level sources, **mic** (only via XLR-connector) for microphones	
11) pan	effect signal distribution control	
12) select	effect select switch	
13) level	level control internal effect	**efx**
14) power	on/off status indicator	
15) master	master level control	**mains & master**



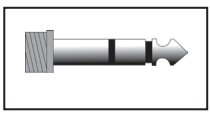
3.2 Rear side

1) line out

The **line out** supplies a pre-amp signal taken after tone-control, effects and **master** for forwarding to other appliances.

2) headphones

This output enables you to connect stereo headphones and mutes the loudspeaker.



!!!Warning: Only use headphones with stereo jackplugs in this output socket!!!

3) send

Send is an output to connect to an external effect device and in conjunction with **return** (input) forms a loop here designed as external effect loop. The effect can be switched on or off via footswitch.

4) return

Return as part of the effect loop operates as signal input from an external effect device (from output of the effect device). The effect can be switched on or off via footswitch. **Return** on its own can also be used as quasi auxiliary signal input (-10 dbV).

5) tuner

The **tuner** output supplies a **pre-master signal** (-9 dbV) to connect an external tuner to the **Compact 60₃**.

6) footswitch

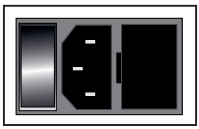
Connection socket for a double-footswitch (on-/off-switch, tip = internal effect/ring = external effect on/off).

7) DI-out

Preamp-output with symmetrical signal, after tone-control, pre master, without effects.

8) power on

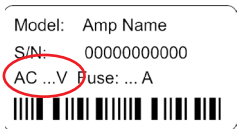
Combined mains switch with mains socket and fuse holder.



4. Starting up

4.1 Cabling and switching on

Before connecting to mains, please ensure that your local mains voltage is suitable for the voltage of the device (e.g. 120V in the USA, 230V in Europe). The relevant specs and safety symbols are printed on the rear side of the unit.



Connect all cables according to your application and switch the amplifier on. The green power control LED indicates operational readiness.

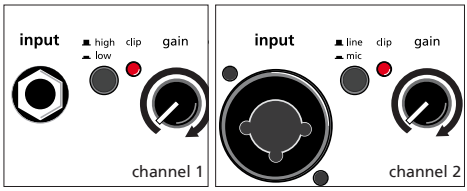
4.2 Level adjustment

Note: Level adjustment

By setting the level correctly we mean the signal level in one or several devices in a signal chain is neither too high nor too low. This applies equally to all circuits in a complete circuit design (EQs, preamps etc.)

Consequently, care must be taken that no part of the circuit is overloaded or that distortion is unintentionally added to the signal.

We have carefully designed the circuit to achieve this objective whilst also providing controls for „manual" intervention.



First ensure, that the master level control is zeroed (over to far left), so that when you are setting the sound level, the signal passes through the electronics only and does not reach the loudspeaker. By pressing the **high-/low-** (attn.) resp. **line-/mic**-switches you can adapt the amplifier to your signal sources (guitar pickups, microphone etc).

Turn the **gain** control clockwise until the red **clip** indicator flashes momentarily when playing with a strong attack. Thus you make sure that your signal source (e.g. instrument) provides the input-stage of the amplifier with the necessary input.

The **clip**-LED indicates an overload. A short flicker is of no danger to AER devices. During operation a short flicker can be accepted, to be on the safe side you should reduce the **gain** slightly to achieve an optimal and distortion-free performance.

Finally set the desired overall volume level with the **master** level control.

5. Functional characteristics

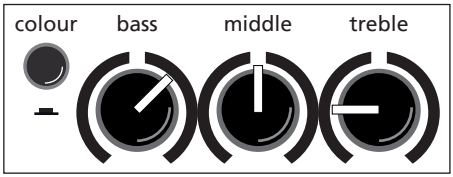
5.1 Equalization

The triple-/dual-band equalizer of your **Compact 60₃** provides you with an active and high quality sound interaction tool that supports the natural tone of instruments and voice whilst simultaneously offering you the possibility of a controlled accentuation.

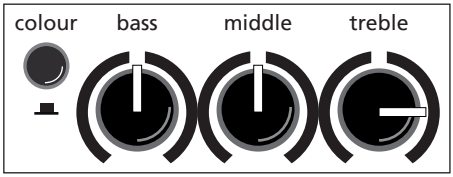
With all controls in mid position the filters are set to produce a very pleasing and natural sound impression that you can „colour up" by using the **colour** filter with the effect of lowering the mids and lifting the trebles. The tone becomes more open and light and is especially suited for fingerpicking techniques.

The equalization can support or soften the effect of the **colour** filter and allows a differentiated mids-accentuation.

A: with colour-filter (switch pressed)
reduce **treble** to soften possible sharpness



B: without colour-filter (switch not pressed)
boost **treble** to brighten the sound



Note:

The active equalization of the **Compact 60₃** effects the signal adjustment. If you spot an intensified flickering of the clip indicator, level the signal level with the **gain** control **(s. 4.2 Level adjustment)**.

5.2 Effects

The **Compact 60**3 has a built-in (internal) digital effect processor, with the **select**-switch you can choose between **4 different effects**:

1 = reverb 1 (short)
2 = reverb 2 (long)
3 = delay (320 ms)
4 = chorus

The **efx-level**-control determines the intensity of the internal effects (left stop = no effect).

Furthermore an additional effects unit (external effect) may be connected to the **Compact 60**3. For this purpose use the **send** and **return** sockets on the rear side of the amplifier (**send goes to input, return to the output** of the external effects device). The intensity of the effect is adjusted at the external effects unit.

With the **efx-pan** control the different effects are blended with the original signal. The **efx-pan** works as follows:

left stop:	**internal effect on channel 1** **external effect on channel 2**
mid position:	**internal effects on channels 1 + 2** **external effects on channels 1 + 2**
right stop:	**internal effects on channel 2** **external effects on channel 1**

5.3 Footswitch

A standard double-footswitch (on-/off-switch) can be plugged into the **footswitch**-socket on the rear side of the amplifier via stereo cable. By this footswitch the internal and external effects can be switched on and off.

5.4 Phantom power

Microphones requiring **48V phantom power** can be connected to the **XLR-socket** of **channel 2** directly. Factory-provided phantom power is activated but, if required, may be deactivated by an internal jumper.

In contrary **9V phantom power**, if required, can additionally be activated in **channel 1** by an internal jumper.

Please note: For both alterations the device must be opened, therefore only qualified service personnel may carry out the modifications concerning the de-/activating of phantom power.

General Note: Use of 48V or 24V phantom power

(Phantom power = remote supply, here: powering an audio device via the connected audio line)

Turn on the phantom power only if the unit connected to an XLR socket is designed to handle it!

In general, suitable units are e.g. condenser microphones, active DI-boxes and other special audio devices, whose power supply is drawn from the phantom power. Such devices are also labelled accordingly; please heed the permissible power consumption (max.10mA).

High-quality dynamic microphones with a balanced signal need no phantom power, but can handle it anyway.

Other devices, which have not been designed explicitly for phantom power operation, can suffer from considerable malfunctions and damage may result as well.

Examples of devices that may be damaged by incorrect application of phantom power include:

Low-cost dynamic microphones with a mono jack-plug (unbalanced signal) that were fitted afterwards with an XLR connector.

Audio devices with a balanced XLR output (e.g. DI-boxes, effects devices, instrument preamps with a DI output etc.) which are not protected against phantom power applied to their XLR output. (The DI connectors on AER products are protected against applied phantom power.)

Other audio devices (such as preamps, effects pedals etc.) whose unbalanced line output was replaced by an XLR socket.

If in doubt please consult the manufacturer of the device you are using.

6. Technical specifications

Inputs (notes 1, 2, 4)	
channel 1	High impedance, unbalanced input for instruments (pick-ups) and line-level sources Mono jack socket, ¼" (6.35 mm) Sensitivity: 22 mV (–33 dBV) High/low (attenuator) switch: –10 dB Impedance: 2.2 Meg Equivalent input noise, A-weighted: 1 uV (–120 dBV) Phantom power (optional): 9 V DC / max. 100 mA, short-circuit protected
channel 2	Switchable instrument or microphone input Combo socket, XLR + jack ¼" (6.35 mm)
	line mode High impedance, unbalanced input for instruments (pick-ups) and line-level sources Jack socket only Sensitivity: 27 mV (–31 dBV) Impedance: 1 Meg Equivalent input noise, A-weighted: 2.4 uV (–112 dBV)
	mic mode XLR (balanced), stereo jack (balanced), or mono jack (unbalanced) input Sensitivity: 3.3 mV (–50 dBV) Impedance (balanced mode): 1.2 k Impedance (unbalanced mode): 2.7 k Voice filter: –10 dB at 270 Hz (referred to 10 kHz) Equivalent input noise, A-weighted: 0.8 uV (–122 dBV) Phantom power (XLR only): 48 V, max. 10 mA, short-circuit protected
clip indicators for ch. 1 and 2	Headroom: min. 8 dB
return	Input from external parallel effect loop, or supplementary input, before master volume Mono jack, ¼" (6.35 mm) Sensitivity: 320 mV (–10 dBV) Impedance: 20 k (note: impedance changes to 5 k while external effect is switched OFF by footswitch)
Outputs (note 3)	
phones	Headphones output. When plugged in, internal speaker is muted. Stereo jack socket, L/R connected, ¼" (6.35 mm) Max. output power: 2 x 100 mW / 1000 ohm Input sensitivity for 2 x 50 mW / 1000 ohm: 23 mV (–33 dBV) at channel 1 input Impedance: 470 ohm (common for L and R) **Note:** Suitable for headphones with stereo jack. Does not work with mono jacks.
tuner	Tuner output Mono jack socket ¼" (6.35 mm) Output voltage: 340 mV (–9 dBV)
line out	Preamplifier output after tone controls, with effects, and after master volume Mono jack, ¼" (6.35 mm) Output voltage: 1.4 V (+3 dBV)
DI-out	Balanced XLR output before master, after tone controls, without effects 1 = ground 2 = positive 3 = negative Differential output voltage: 140 mV (–17 dBV)
send	Output to external parallel effect loop Before master, after tone controls Mono jack, ¼" (6.35 mm) Output voltage: 1.4 V (+3 dBV)
Footswitch connector	
footswitch	Stereo jack socket ¼" (6.35 mm) for a dual footswitch Tip = internal effect on/off Ring = external effect on/off Sleeve = common (ground) Effect is OFF when the footswitch is ON.
Tone controls	
ch. 1	**colour** –3 dB at 700 Hz, +10 dB at 8 kHz **bass** ±8 dB at 100 Hz (shelf type) **middle** ±6 dB at 800 Hz **treble** ±8 dB at 10 kHz (shelf type)
ch. 2	**bass** ±8 dB at 100 Hz (shelf type) **treble** ±11 dB at 10 kHz (shelf type)
Effects	
Internal effects	1 Reverb 1 2 Reverb 2 3 Delay 4 Chorus
External effect	Parallel effect loop (see also **send** and **return**).
eff. pan	Blends both internal and external effects between channels 1 and 2, with reverse direction of rotation for the external effects.
Power	
Power amp	60 W / 4 ohm, DMOS, monolithic I.C. Dynamic range, A-weighted: 92 dB (note 2)
Limiter threshold	50 W
Analog signal processing	Dedicated equalizer, subsonic filter, adaptive peak limiter
Speaker system	8" (200 mm) twin cone full-range speaker, bass reflex enclosure
Mains power	Mains voltage (depending on model): 100, 120, 230, or 240 V AC, 50–60 Hz Power consumption: max. 120 W
Mains fuse	5 x 20 mm T 1 A L / 250 V for 230 and 240 V models T 2 A L / 250 V for 100 and 120 V models
General	
Cabinet	12 mm (0.47") birch plywood
Finish	Waterbased acrylic, black spatter finish (standard model)
Dimensions	260 mm (10.2") high 325 mm (12.8") wide 235 mm (9.25") deep
Weight	6.5 kg (14.3 lbs)

Notes:

1. Sensitivity

Input sensitivities refer to 50 W into 4 ohm, full gain and master settings, neutral tone control settings, and 1 kHz sine-wave test signal.

2. Noise and dynamic range

Equivalent input noise voltages are typical values obtained by measuring noise voltage at speaker output and dividing by the voltage gain of the amplifier for white noise. Full gain and master settings, neutral tone control settings, input shorted, measuring bandwidth 20 Hz – 20 kHz.

Dynamic range of power amplifier: Ratio of between output signal at limiter threshold to A-weighted output noise with **master** in zero position.

3. Output levels

Output levels refer to 50 mV / 1 kHz sine-wave test signal at channel 1 input, full gain and master settings, neutral tone control settings, send fully clockwise.

4. Options

Gain of channel 2 in mic mode can be decreased by 4.6 dB by an internal jumper.

48 V phantom power can be deactivated by an internal jumper.

9 V phantom power for channel 1 can be applied by an internal jumper to the "ring" terminal of the input jack. **Caution:** Use this option with care. Read the operating instructions.

Specifications and appearance subject to change without notice.

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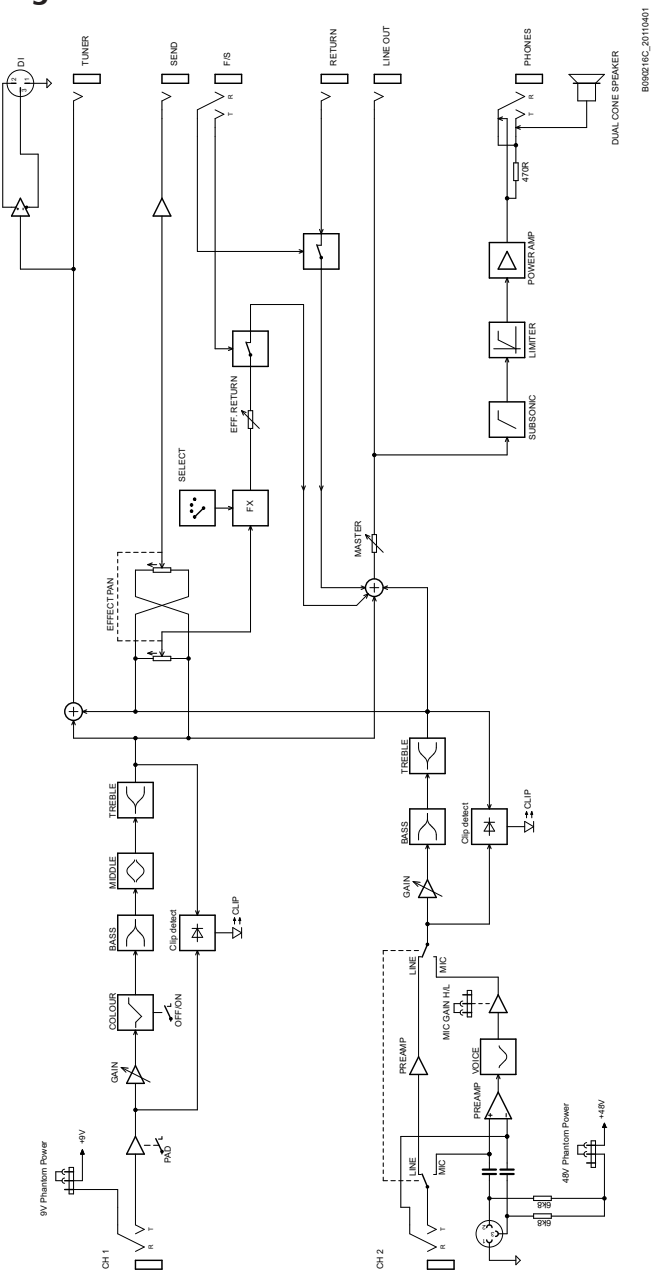
7. Circuit diagram



notes